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## Document Number 2

Entry 2 of 4

File: USPT

Dec 5, 1989

US-PAT-NO: 4885343

DOCUMENT-IDENTIFIER: US 4885343 A

TITLE: Preparation of triblock copolymers

DATE-ISSUED: December 5, 1989

### INVENTOR-INFORMATION:

| NAME            | CITY    | STATE | ZIP CODE | COUNTRY |
|-----------------|---------|-------|----------|---------|
| Dennis; Kent S. | Midland | MI    | N/A      | N/A     |

### ASSIGNEE INFORMATION:

| NAME                     | CITY    | STATE | ZIP CODE | COUNTRY | TYPE CODE |
|--------------------------|---------|-------|----------|---------|-----------|
| The Dow Chemical Company | Midland | MI    | N/A      | N/A     | 02        |

APPL-NO: 7/ 318788

DATE FILED: March 3, 1989

PARENT-CASE:

This is a continuation of application Ser. No. 033,444, filed Apr. 1, 1987, now U.S. Pat. No. 4,839,430.

INT-CL: [4] C08L 297/02

US-CL-ISSUED: 525/280; 525/242, 525/271, 525/901, 525/941

US-CL-CURRENT: 525/280; 525/271, 525/424, 525/901, 525/941

FIELD-OF-SEARCH: 525/280, 525/271, 525/292, 525/941

### REF-CITED:

#### U.S. PATENT DOCUMENTS

| PAT-NO         | ISSUE-DATE    | PATENTEE-NAME | US-CL   |
|----------------|---------------|---------------|---------|
| <u>3598887</u> | August 1971   | Darcy et al.  | 525/271 |
| <u>3639523</u> | February 1972 | Hayter et al. | 525/280 |
| <u>3770712</u> | November 1973 | Schwab        | 525/280 |
| <u>3891721</u> | June 1975     | Prudence      | 525/271 |
| <u>3956426</u> | May 1976      | Shepers       | 525/271 |
| <u>3959412</u> | May 1976      | Oberlin       | 525/271 |
| <u>3992483</u> | November 1976 | Willis        | 525/271 |
| <u>4010226</u> | March 1977    | Crossland     | 525/271 |
| <u>4172100</u> | October 1979  | Tung et al.   | 585/25  |
| <u>4196153</u> | April 1980    | Tung et al.   | 260/665 |
| <u>4196154</u> | April 1980    | Tung et al.   | 260/665 |

#### FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO  
1400497

PUBN-DATE  
July 1975

COUNTRY  
GB

ART-UNIT: 151  
PRIMARY-EXAMINER: Seccuro; Carman J.  
ABSTRACT:

Block copolymers are prepared by providing an initial anionically polymerizable monomer portion; anionically polymerizing the initial monomer portion to provide polymer chains with living ends, and contacting the polymer chains with m-bis(phenylethynyl)benzene (PEB), a coupling agent, to bring about substantial coupling. In preferred embodiments the polymer chain living ends are capped with an .alpha.-alkylstyrene or a ring-alkyl substituted .alpha.-alkylstyrene, wherein the .alpha.-alkyl groups contain between about 1 to about 20 carbon atoms. and the ring-alkyl groups have at least 2 carbon atoms. The coupling agents employed with the capped polymer chain living ends include PEB, p-dibromoxylene, terephthaloyl chloride, 1,4-dibromobutene; and the multifunctional epoxides, multifunctional isocyanates, multifunctional aziridines, multifunctional aldehydes, multifunctional ketones, multifunctional anhydrides, multifunctional esters, and polyhalides.

20 Claims, 0 Drawing figures

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